

APPENDIX D

COMMENT TABLES A AND B

EPA does not necessarily endorse or agree with the statements made in this forward section.

ATTACHMENT TO FEBRUARY 19, 2008 LETTER
RESOLUTION OF 'A' COMMENTS ON THE DRAFT ARKEMA EARLY
ACTION EE/CA WORK PLAN PREPARED BY PARAMETRIX FOR US EPA

This document contains a complete set of Legacy Site Services (LSS) comments on the Draft Arkema Early Action EE/CA Work Plan prepared by Parametrix for US Environmental Protection Agency (EPA Work Plan). The comments contained in this document include comments that LSS is willing to accept as well as comments that will need to be addressed prior to finalization of the EPA work plan for LSS to forgo formal dispute. Also, LSS notes that a significant number of the "non-responsive" comments included in EPA's September 21, 2006 letter disapproving the LSS Revised Work Plan are not addressed in the EPA Work Plan. Many of these comments included requirements that have not been met in the EPA Work Plan although these requirements were the basis for EPA's decision to disapprove and reserve to itself modification of the LSS Revised Work Plan. It appears that EPA has set different standards for Parametrix and LSS, and because LSS seeks assurance that the EPA Work Plan is sufficient to meet all EPA standards and will not be modified after these current negotiations are completed, LSS requests that EPA withdraw all of the "non-responsive" comments that are not addressed in the EPA Work Plan. For a more complete explanation of the issues related to the dispute, see the text of the July 13, 2007 letter.

Explanation of table column headings:

LSS Comment Number:	A sequential number applied by LSS to identify each individual comment in the table.
Comment Priority:	A hierarchical designation provided for each comment to indicate the level of priority placed on the comment by LSS. The "A" designation is a comment that will require further technical discussion and resolution to EPA's and LSS' satisfaction for LSS to forgo formal dispute. LSS will not dispute the "B" designated comments if the "A" designated comments are satisfactorily resolved.
EPA Work Plan Page/Section Number	Identifies the Page and Section number of the EPA work plan to which the comment is directed.
Comment/Problem Statement	Provides LSS' comment and/or problem statement that requires resolution.

Solution	Provides LSS' proposed solution for resolution of the comment/problem.
Comment Resolution	Provides the resolution of the comment.
EPA comment number	Provides a cross-reference to the original comment number provided by EPA on the September 26, 2005 work plan, where applicable.

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
1	A	All/ All	EPA's work plan was non-responsive to a total of 46 government team comments that were provided in its work plan disapproval letter to LSS dated September 21, 2006.	LSS requests that EPA retract the "non-responsiveness" determination made in EPA's September 21, 2006 letter for all of these comments.	EPA's letter dated November 7, 2007 addresses this comment. LSS's letter dated November 16, 2007 continues to request that EPA retract its determination that Arkema's second draft Work Plan was not responsive to these comments. EPA and LSS most recently discussed the Category B comments in the November 13, 2007 meeting, and have come to agreement on the pathway forward on the Category B issues as documented in the Category B spreadsheet attached along with this spreadsheet. EPA and LSS agree to disagree on whether these comments were adequately addressed in Arkema's second draft Work Plan which ultimately does not affect the agreements reached that are attached.	No specific work plan modifications were required as a result of this comment.	16, 26, 32, 33, 70, 86, 88, 96, 97, 121, 130, 144, 147, 199, 140, 233, 234, 237, 242, 251, 257, 271 295, 300, 304, 305, 306, 307, 311, 313, 320, 321, 322, 323, 327, 361, 376, 439, 451, 452, 435, 436, 437, 498, 499, and 500
2	A	2-1 / 2.1	EPA indicated that there is clear evidence of recreational usage of the beach areas at the site.	LSS requests that EPA describe the "clear evidence" and estimates on how often the beach areas are used for recreational purposes.	The Work Plan addendum will note that the recreational user exposure scenario has been replaced with the trespasser scenario in the preliminary conceptual site model.	Text has been added to Section 2.1 of the Work Plan Addendum to note this change.	NA
3	A	Fig. 4-1 / 4	Seeps have not been observed at the Arkema facility even during a riverbank survey conducted from a boat. However, Figure 4-1 indicates that seeps have associated exposure routes in the form of "dermal contact or root uptake" and "dietary" for select ecological receptors. These exposures are marked as being "complete and significant pathways," however, they are also highlighted in yellow to indicate that seeps are not present at the facility and are therefore, not considered in the EE/CA. This is a contradictory evaluation and these pathways should not have been flagged as being complete and significant. In addition, EPA's figure indicates that there are several exposure routes that are either "complete and insignificant" or "complete and significance unknown." Seeps are not present at the site and therefore, this is not a complete pathway.	LSS requests that the figure which contains errors and confusing information be replaced with the figure from the Revised Draft Work Plan, which is site specific and correct.	EPA and LSS agree that this will be revised and updated in the EE/CA report.	No Work Plan Addendum revisions were required for this comment. Figure 4-1 modifications will be made in the EE/CA report.	
4	A	Fig. 4-2 / 4	Seeps are not present at the site and therefore, the Human Health CSM figure has similar issues to the Ecological CSM figure.	LSS requests that the figure which contains errors and confusing information be replaced with the figure from the Revised Draft Work Plan, which is site specific and correct.	EPA and LSS agree that this will be revised and updated in the EE/CA report.	No Work Plan Addendum revisions were required for this comment. Figure 4-2 modifications will be made for EE/CA report.	

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5	A	4-10 / 4.2.3	EPA's Work Plan included an estimate of DDT loading from stormwater. It would be helpful if a description of the conditions used for the annual loading calculation was provided in the text rather than only referencing a letter in an appendix. Arkema has been periodically sampling stormwater at the site for several months and these data have not yet been reported. The amount of stormwater-related data available for EPA's loading estimates may have been rather minimal. In addition, EPA's calculations were performed using data collected prior to the plant's deconstruction. Therefore, this is likely an inaccurate estimate of current loading especially since the site conditions have changed so dramatically.	LSS did not receive the calculations with EPA's work plan but received the materials on June 29, 2007. LSS is currently reviewing the loading estimates and will provide additional comments when the review is complete. LSS is evaluating EPA's loading calculations. In addition, LSS has been periodically sampling stormwater at the site for several months and these data have not yet been reported but would probably be more appropriate for evaluating current loading estimates.	Revised stormwater loading estimates based on more recent stormwater data will be included in the work plan addendum if they have already been calculated. EPA will review the revised loading estimates in the addendum. This loading should include the latest LWG data as well as Arkema's data.	Stormwater loading estimates based on the most recent stormwater data are presented in Table 1 of the Work Plan Addendum.	N/A
6	A	4-12 / 4.3	LSS does not agree that the exposure medium "air" should be ranked with receptors in the figure if these pathways will not be evaluated in the EE/CA. Since these pathways will be evaluated during the Portland Harbor Human Health Risk Assessment, there is no reason to assign definitions in the CSM. Also included in Figure 4-2	LSS requests that the reference to air as an exposure medium be removed from the figures and text.	LSS and EPA agree that air is not an exposure medium that will be addressed. The addendum will clarify this point.	Text was added to section 4.3 of the Work Plan Addendum to clarify this point.	
7	A	4-13 / 4.3	LSS does not agree that "on-site workers" will potentially be exposed to surface water via ingestion (i.e. drinking water), dermal contact from washing hands or showering, and inhalation of VOCs from showering. Willamette River surface water in the vicinity of the site has not been and is not expected to be used as a washing and/or drinking source to on-site workers. LSS imagines that a sophisticated treatment system would be employed to ensure that the surface water is suitable for consumption if it indeed became a resource. Also included in Figure 4-2	LSS requests that the references to on site workers drinking, washing hands, and showering in surface water be removed from the figures and text.	Per EPA's February 27, 2006 letter to Larry Patterson, EPA agreed that the MCL and PRG will be considered at this time for screening purposes only. EPA further agreed that MCL and PRG as ARARs may result at later stages of the EE/CA.	Text was added to section 4.3 of the Work Plan Addendum to clarify this agreement.	N/A
8	A	4-15 / 4.3	LSS does not agree that "residents" will potentially be exposed to untreated surface water from the vicinity of the site. The designated land use for the site and surrounding area as "industrial" precludes residential uses. The ingestion and exposure of contaminated surface water seems a bit reckless and therefore, this does not represent a complete and significant exposure route. Also included in Figure 4-2.	LSS requests that the references to residential use of the site be removed from the figures and text.	The issue is not that the site will be residential but that the river can be used for municipal drinking water (i.e., that can then be consumed by residents and workers). EPA and LSS agree to clarify in the addendum that the site is zoned for industrial use and the CSM is not intended to evaluate on-site residential exposure. Also, see resolution to comment 7.	Text was added to section 4.3 of the Work Plan Addendum to clarify this point.	N/A

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9	A	5-1 / 5	<p>“Using screening criteria that address potentially significant exposure pathways helps ensure that lists of COIs by media represent the greatest ecological and health threats for sediments at the site.”</p> <p>The use of screening level values (SLVs) is adequate to identify chemicals of interest. However, SLVs and generic PRGs cannot be used meaningfully to identify principal threats. Although SLVs and PRGs are appropriate for problem formulation they are not site-specific and cannot be used to portray principal threats with any scientific certainty.</p>	LSS requests that the language regarding SLVs being used to define principal threats for the site be removed and instead a mass removal analysis be used to define the principal threat area for the removal action.	EPA made a proposal in its August 28, 2007 letter regarding eliminating the use of the phrase Principal Threat Material (“PTM”) with respect to the DDT and constituents SLVs and PEC in the Work Plan. Arkema accepted EPA’s proposal in its September 28, 2007 letter. EPA and Arkema agree on language to be placed in an addendum to the EE/CA Work Plan as confirmed in EPA’s November 7, 2007 letter. EPA and Arkema have debated the use of a comprehensive addendum to document changes that EPA and Arkema agree to relative to the Work Plan. However, LSS’s letter dated November 16, 2007 appears to agree that a comprehensive addendum can be the vehicle for documenting agreed to changes to the July Work Plan. EPA provides its assurance that the final Addendum will be attached to the beginning of the July Work Plan and the final Addendum and July Work Plan will be posted on EPA’s website.	Text was added to section 5 of the Work Plan Addendum noting the appropriate use of the phrase “PTM”.	NA
10	A	5-2 / 5.1	Bullet – Toxicity from Direct Contact Exposure. The region- and harbor-specific sediment quality benchmarks developed by LWG are relevant and appropriate to the site and should be used instead of the consensus based TEC and PEC values for MacDonald et al. (2000).	LSS requests that region- and harbor-specific sediment quality benchmarks developed by LWG be used instead of the consensus based TEC and PEC values. Also, based on the context of the paragraph the double negative should be reworded to state that “Commercial industrial exposures are likely to overestimate the types of exposures associated with dockworker and transient use of the site.”	The revised sentence is accurate; however, do not need to include the revised sentence in the addendum. LWG sediment quality benchmark values can be included in the EE/CA process only after acceptance by EPA which has not occurred yet.	Text was added to section 5.1 of the Work Plan Addendum to clarify this agreement.	

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11	A	5-2 / 5.1	<p>Bullet - Adverse Impacts from COI Bioaccumulation or Food Chain Exposures.</p> <p>“...site-specific DDX compounds (DDD, DDE, DDT) SLVs (DEQ 2006b).” The reference provided in this statement does not indicate that the SLVs for DDT are site-specific. The referenced document is obviously a preliminary version of the draft guidance document that was released in September 2006 by DEQ (Public Review Draft Guidelines for Assessing Bioaccumulative Chemicals of Concern in Sediment), which was subsequently revised pursuant to peer review and comment and released in final form January 31, 2007.</p>	<p>LSS requests that the final January 31, 2007 DEQ guidance document be the foundation for any SLVs selected for the site. Also if EPA wishes to modify these values to derive site-specific SLVs, then Arkema requests further clarification of this decision as follows:</p> <ol style="list-style-type: none"> An explanation of why site-specificity is important in this case but not in others (e.g., SLVs for benthic invertebrates) An explanation of the assumptions in the final guidance document that were modified to derive site-specific SLVs An explanation any deviations from rules for site-specificity that are provided in Section 4.2 (p.11) of the final guidance document. 	EPA and LSS have agreed to use the most recent version of DEQ's (April, 2007) guidance document now and in the future.	Text was added to section 5.1 of the Work Plan Addendum to clarify this agreement.	
12	A	5-4 / 5.2.1	<p>“The DEQ 2006b values were derived specifically for DDX compounds (DDT, DDD, and DDE) at Arkema and are based on exposure assumptions being used for the Portland Harbor Superfund site.”</p> <p>In addition, LSS notes that this statement seems strangely inconsistent with the assumptions that are typically inherent to screening level values and PRGs. Such values are conservatively based and designed around a lower threshold concentration below which risk is assumed to be de minimis. In site-specific evaluations, such assumptions are modified to more realistically represent the site with the result that actual remediation goals are higher than PRGs – yet still meet risk management objectives.</p> <p>LSS also lauds EPA's desire to adopt site-specific or harbor-specific values. However, this is the first indication of such site-specificity.</p>	LSS requests that site specific Round 2A iPRG's should be used as the starting point in developing the SLVs. See also LSS Comment 11 above.	EPA and LSS have agreed that; if EPA approves harbor specific SLV values developed during the RI/FS process, the Arkema EE/CA process can use such harbor specific SLVs.	Text was added to section 5.2 of the Work Plan Addendum to clarify this agreement.	
13	A	5-4 / 5.2.1	“Sediment data comparison summaries are provided in Tables 5-3a–h” and are inaccurate or incomplete.	<p>LSS requests that these tables be revised to:</p> <ul style="list-style-type: none"> Include MacDonald et al.'s (2000) PEC (572 ug/kg dw) for total-DDT. Include harbor-specific sediment quality benchmarks developed by LWG. 	EPA has not approved use of the 572 ug/kg PEC. EPA and LSS have agreed that, if EPA approves harbor specific SLV values developed during the RI/FS process, the Arkema EE/CA process can use such harbor specific SLVs.	Text was added to section 5.2 of the Work Plan Addendum to clarify this agreement.	

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14	A	5-4 / 5.2.1	<p>“Human health and ecological bioaccumulative SLVs for DDD, DDE, and DDT from the DEQ document Calculating Sediment Screening Levels for DDT (DEQ 2006b), ...”</p> <p>DEQ’s (2006b) ecological bioaccumulative SLVs are missing from Table 5-1a and Table 5-3a-h.</p>	LSS requests that the ecological bioaccumulative values be included in Table 5-1a as they are for the human health exposures in Tables 5-3a-h.	The addendum will include a note to reference the more recent DEQ guidance (DEQ 2007).	Text was added to section 5.2 of the Work Plan Addendum noting the reference.	
15	A	5-7 / 5.4.1	<p>Second paragraph beginning “The highest concentrations of DDX...”</p> <p>This paragraph introduces new samples and locations for concentration in tissue (FC017, FZ0609) that are not familiar to Arkema/LSS.</p>	LSS requests that an explanation for the origin of these samples and whether they conform to QA and data integrity criteria adopted by the LWG and approved by EPA be provided.	An explanation for the newly identified samples was provided during the conference call. LSS will check to see if the samples were already included in previous draft work plan under a different sample ID. No other action required.	Text was added to section 5.4 of the Work Plan Addendum to clarify the explanation.	
16	A	5-8 / 5.5	Benthic Toxicity Studies. There are several items in this section that need clarification or further explanation.	<p>LSS request the following:</p> <ul style="list-style-type: none"> ▪ Please define control-adjusted impacts. Are these the same as simple statistical comparisons of toxicity test results to laboratory controls or do they represent something else (e.g., Abbott’s correction)? • This paragraph seems to select data for only those tests with significant differences in comparison to controls. Please provide a description of spatial patterns for all the toxicity testing results. • This paragraph also implies a correlation between the bioassay results and other SLVs. Please provide a description of the correlation that was conducted and a supporting citation for the statistical technique that was used. • Please include additional comparisons to LWG sediment quality benchmarks, which were derived from the sediment toxicity data for all of Portland Harbor, including the Arkema site. 	The interpretation of benthic toxicity data is moot since no new benthic toxicity data will be generated as part of the EE/CA work. If at a later date toxicity testing were to be considered these technical issues would be revisited.	Text was added to section 5.5 of the Work Plan Addendum to clarify this point.	
17	A	Figure 1-1 / 6	EPA declared that the “preliminary RAA” was not presented in the Revised Work Plan and therefore, LSS was non-responsive. However, this feature is clearly outlined in Figure 6-1 of the LSS Revised Work Plan. It is presented in EPA’s Work Plan within Figure 1-1. LSS does not agree with the “non-responsive” comment.	LSS requests that the “non-responsiveness” determination be retracted.	This comment is only relevant to the original LSS EE/CA Work Plan and is resolved under comment No. 1.	No Work Plan Addendum revisions were required for this comment.	233

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18	A	6-2 / 6.1.1	<p>“None of these documents establishes a universal “threshold level” of toxicity or risk of “principal threat.” Instead, they provide general guidelines to be used for establishing principal threat for each site under consideration.”</p> <p>EPA’s (1991) also provides guidance for material that would be considered low level threat, which only needs to be near the “risk range.”</p> <p>EPA (1991) also states that “the principal threat/low level threat waste concept and the NCP expectations were established to help streamline and focus the remedy selection process not as a mandatory waste classification requirement.”</p> <p>EPA (1993) does not provide guidance on principal threat material, but does discuss the use of streamlined risk assessment. As stated by EPA (1993) “since removal and remedial action cleanup levels may differ, all early action decisions should consider the possible long-term action and corresponding cleanup levels. The OSCIRPM should ensure that all risk assessment activities are consistent with any future remedial action remaining to be taken (or potential for listing, if the site is not on the NPL) to achieve consistent risk goals.”</p>	<p>LSS requests that both principal and low level threat concepts be provided in the EECA to provide additional perspective on what does and does not constitute principal threat material.</p> <p>LSS also requests that EPA consider additional dimensions to the NTCRA such as mass removal as described previously in correspondence and presentations to EPA.</p> <p>Based on this guidance, LSS also requests that EPA revise the draft EE/CA work plan to be consistent with the risk assessment methodology currently being used by LWG pursuant to EPA’s direction</p>	See resolution stated for Comment 9 above.	Text was added to section 6.1 of the Work Plan Addendum noting the appropriate use of the phrase “PTM”.	
19	A	6-2 / 6.1.2	<p>Paragraph 1 –</p> <p>EPA has excluded actual data for biota (bioaccumulation data) be excluded, yet still be the object of conservative SLV calculations?</p>	LSS requests that the PTM definition be revised to reflect the breakpoint in mass-to-volume removal.	See comment resolution for Comment 9 above.	Text was added to section 6.1 of the Work Plan Addendum noting the appropriate use of the phrase “PTM”.	NA
20	A	6-2 / 6.1.2	<p>Paragraph 2 –</p> <p>The SLVs seem to be equated with a site-specific understanding of risk. They are not. The selection of the lowest among already conservative SLVs is appropriate for an initial problem formulation at the beginning of an RI/FS and risk assessment. Selection of an arbitrary 1,000X multiplier is simply a benchmark and cannot be construed to represent the results of a site-specific risk assessment. Such values serve only to initiate a problem formulation at the beginning of the risk assessment, not the end.</p>	LSS requests that the use of the 1,000X multiplier of an SLV not be equated with a site-specific understanding of risk and that the PTM definition be revised to reflect the breakpoint in mass-to-volume removal.	See comment resolution to Comment 9 above.	Text was added to section 6.1 of the Work Plan Addendum noting the appropriate use of the phrase “PTM”.	NA

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
21	A	6-3 / 6.1.3	Footnote 34 Please clarify. The footnote seems to equate total DDT with sum of DDx using a toxic equivalency factor of 1. Please provide the analysis for such a conclusion. Although some DDx isomers may degrade to DDE, the fact that some isomers (i.e. DDD) do not degrade to DDE and that all isomers exist in real time in their own isomeric configuration argues against this assumption.	LSS requests that the footnote be removed and that the PTM definition be removed based on this erroneous assumption.	See comment resolution to Comment 9 above.	Text was added to section 6.1 of the Work Plan Addendum noting the appropriate use of the phrase "PTM".	
22	A	6-6 / 6.2	Paragraph 4 – "This analysis does not directly address exceedances of PECs and, in theory, could miss some PTM defined on the basis of acute effects for ecological receptors." The PEC is a consensus based value that includes both chronic and acute data.	LSS requests that the sentence be deleted and also clarification as to how exceedances of a PEC will miss potential acute effects.	LSS will clarify in the addendum.	Text was added to section 6.2 of the Work Plan Addendum to clarify this point.	NA
23	A	6-7 / 6.2	Paragraph 1 "Sample dilution raised respective DLs substantially for other chemicals."	LSS requests that only the 'D' qualified chemicals be reported in a re-analysis and that the detection limits from the original analysis be applied to those chemicals that were not 'D' qualified.	EPA and LSS agreed on this point for future data analysis. LSS will note in the addendum.	Text was added to section 6.2 of the Work Plan Addendum to clarify this point.	NA
24	A	6-8 / 6.2	First completed paragraph This paragraph implies that the pattern of exceeding Region 9 PRGs is the same or no different than that for the bioaccumulative or PEC SLVs and therefore does not yield any new information. This does not seem possible because as indicated in Table 5-1a the Region 9 PRGs for some substances may be over 1,200,000 times greater than the bioaccumulative SLV. Consequently, it seems obvious to LSS that the line of evidence based on comparisons to Region 9 PRGs would not show nearly the level of risk implied by comparisons to other SLVs.	LSS requests that this paragraph be deleted.	Instead of deleting the paragraph in the work plan the addendum text will clarify that the area of Region 9 PRG exceedance is much less than the 1,000x bioaccumulative SLV area.	Text was added to section 6.2 of the Work Plan Addendum to clarify this point.	

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25	A	6-8 / 6.2	Groundwater, TZW, and Surface Water – Paragraph 1 “Aqueous media are not the focus of the EE/CA, but are included in the analysis because of the potential threat of recontamination of sediments from chemicals migrating in groundwater from upland portions of the site.” There are other possibilities for recontamination.	LSS requests that this sentence be rephrased to include upriver sources and transport and deposition of particles via surface water.	EPA and LSS agree on this issue. LSS will provide generalized clarifying language in the addendum.	Text was added to section 6.2 of the Work Plan Addendum to clarify this concept.	NA
26	A	6-9 / 6.3	First Bullet - The uncertainty range seems arbitrary. Second Bullet – The vertical over dredge depth seems arbitrary and much greater than commonly practiced. Third Bullet – Specification of a hydraulic containment structure seems premature since the final RAA boundary has not been determined and the best remedial technology commensurate with the remedial action objective has not been finalized.	LSS requests that a technical explanation for the selection of the uncertainty range and the over dredge depth be provided. LSS also requests that the specification of a hydraulic containment structure boundaries be deferred to the EE/CA.	LSS will propose language for the addendum that clarifies that the purpose of the EE/CA is to refine and better define the limits that will be used for things such as dredging boundaries and overdredge depths. The actual limits will be based on the data and data distribution at the time of the EE/CA report.	Text was added to section 6.3 of the Work Plan Addendum to clarify the purpose of the EE/CA.	
27	A	6-9 / 6.4	Paragraph 2 – This paragraph is just a re-iteration of the chemical screening that has already been conducted in previous sections of the EE/CA. LSS understands how such screening can be used to scale chemical concentrations to risk-based SLVs to identify the most important substances at the site. However, recontamination is a fate and transport issue which does not seem well served by a simple reiteration of risk scaling.	LSS requests that this section be revised to remove redundancies associated with risk scaling and to focus on an analysis of uncontrolled sources and fate and transport pathways that may lead to recontamination of the site following remediation.	EPA and LSS agreed to no additional action on this comment.	No Work Plan Addendum revisions were required for this comment.	
28	A	6-9 / 6.4	Paragraph 3 – “In the third screen, emphasis was placed on chemicals present in concentrations that might represent an acute threat to ecological receptors (i.e., benthic invertebrates).” This sentence presumably refers to scaling against the PEC SLV. The PEC, as well as the TEC, are broadly based on many studies that include a wide range of exposure durations as well as benthic community data.	LSS requests that the references concerning “acute toxicity” in the context of PEC or TEC values be removed throughout the document, including Tables 5-3a-c.	EPA and LSS agree to include an explanation in the addendum.	Text was added to section 6.4 of the Work Plan Addendum to clarify this point.	

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29	A	6-9 / 6.4	Last Paragraph – This paragraph cites kriging Methods in Attachment B of the work plan that were used to generate isopleths to delineate areas vulnerable to recontamination. However the figures generated in support of Section 6.4 do not appear to have any isopleths and seem to represent polygons for individual data points.	LSS requests that a clear explanation be provided for how the figures were drawn and why isopleths are not apparent. See also specific comments on Attachment B below.	EPA and LSS agreed to no additional action on this comment.	No Work Plan Addendum revisions were required for this comment.	
30	A	6-10 / 6.4	First (continuing) paragraph – This paragraph contains a discussion of recontamination by PAH compounds. However, PAH compounds were not identified as substances with a high recontamination potential.	LSS requests that discussion of PAH compounds be deleted because it does not seem relevant.	EPA and LSS agree to no additional action on this comment.	No Work Plan Addendum revisions were required for this comment.	
31	A	6-12 / 6.4.1	Paragraph 1 – The discussion of recontamination by PCBs seems to indicate that the Arkema site is a source of contamination that extends across the river. Also, the discussion seems to focus exclusively on dredge residuals as the source of recontamination. Presumably there are other recontamination mechanisms that should be discussed (e.g., bedload transport of sediment).	LSS requests clarification in the text of the source of PCB contamination, which appears to be ubiquitous within the river and that other recontamination mechanisms are discussed in the text.	The proposed language from EPA's August 28 letter will be added to the addendum.	Text was added to section 6.4 of the Work Plan Addendum to clarify this understanding.	
32	A	6-12 / 6.4.1	Lindane (gamma-HCH) – The discussion of lindane focuses on screening level values that exceed 10X SLV. Why has risk scaling been modified in this instance from the previously adopted benchmark of 1000X SLV?	LSS requests that Lindane be deleted as a COI.	LSS reviewed the data and found that Lindane should be deleted as a COI. LSS will propose language to resolve this comment in the Work Plan addendum.	Text was added to section 6.4 of the Work Plan Addendum to clarify this agreement.	
33	A	6-14 / 6.4.1	Dioxins/Furans (TCDD Equivalents) – The AMEC (2005) citation appears to be a letter to EPA. LSS cannot accept any conclusions in the letter without reviewing this letter to judge the validity of the conclusions cited by EPA. LSS expects that such strong conclusions should at a minimum be vetted through generation of a report that has undergone a peer review.	LSS requests that the AMEC citation be deleted.	EPA and LSS have agreed to delete this citation in the addendum.	Text identifying the deleted citation was added to section 6.4 of the Work Plan Addendum.	

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
34	A	6.4.2	Recontamination from Chemicals Migrating in Groundwater – Paragraph 4 – This paragraph requires further explanation of the extrapolation of 20 ug/l in water to 0.04 ug/kg in sediment?	LSS requests an explanation of how one logically extrapolates 20 ug/l in water to 0.04 ug/kg in sediment and how such a conclusion is consistent with the following sentence that acknowledges that it may not "actually occur" and that the inaccurate and technically unsound text be deleted..	The addendum will state that this is a preliminary evaluation and that the evaluation will be further refined as the EE/CA proceeds.	Text noting this understanding was added to section 6.4 of the Work Plan Addendum.	
35	A	7-1 / 7	It is premature to exclude the sediment remediation technologies In Situ thin-layer capping, dredging and onsite disposal, and monitored natural recovery from the EE/CA. Each is a viable technology in concert with other technologies considered for remediation of the principal threat material at the Arkema site. For example, thin-layer capping (or thin-layer placement as described in the EPA Sediment Guidance – 12/2005) may be used to cover the fringes of the principal threat area where contaminant levels in sediments are at levels not requiring active removal or where enhancement will expedite natural recovery. Thin-layer placement could also be used to amend residuals remaining after dredging the principal threat area. Dredging and on-site disposal is a viable option if LSS would be willing to construct a disposal site over portions of the upland property. There are land use and other issues that would have to be evaluated further, but this technology should be considered with the others in the EE/CA. Monitored natural recovery may also be appropriate for fringe areas where contaminants in surface sediments are above cleanup levels but there is no subsurface sediment contamination. Natural sedimentation processes may be adequate to provide natural recovery in a relevantly short time frame.	LSS requests that thin layer capping, dredging and onsite disposal, and monitored natural recovery be retained as viable options to be considered in the EE/CA.	As discussed in the November 13, 2007 meeting, EPA agrees that mechanical dredging with hydraulic containment, localized capping (such as post-dredging capping, localized isolation capping, and fringe area capping) and on-site upland disposal are viable technology options that can be considered in the EE/CA.	Text was added to section 7 of the Work Plan Addendum to clarify this agreement.	
36	A	7-1 / 7	Isolation capping should be considered a technology for the EE/CA. Most of the mass of DDx is located in subsurface sediments between docks 1 and 2. DDx has a high affinity for particles and does not readily migrate with groundwater except for co-solvency with solvents such as MCB. Therefore, placing a cap over all or a portion of this area may be viable depending on future site use, and should be considered in the EE/CA.	LSS requests that isolation capping be retained as a viable option to be considered in the EE/CA.	Localized isolation capping is a viable option that can be considered in the EE/CA.	Text was added to section 7.3 of the Work Plan Addendum to clarify this agreement.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
37	A	7-2 / 7.1	Mechanical dredging is a viable technology to be considered for the removal of dredged material. Some mechanical dredge buckets are now designed to be entirely sealed to reduce sediment loss and resuspension in the water column, reducing water quality impacts and residuals during dredging (Herrenkohl et al. 2003). With the use of advanced positioning systems, mechanical dredges can cover the entire dredge area without leaving windrows between grabs. This technology is a viable alternative for the Arkema in-water site and should be further evaluated in the EE/CA.	LSS requests that mechanical dredging be retained as a viable options to be considered in the EE/CA.	Mechanical dredging with hydraulic containment is a viable option that can be considered in the EE/CA.	Text was added to section 7.1 of the Work Plan Addendum clarifying this agreement.	
38	A	7-5 / 7.2.3	Deletion of “nearshore CDF (constructed along the Willamette shoreline), and CAD” from disposal options. As previously commented, nearshore and upland disposal options should be considered as part of the in-water EE/CA. These are viable options LSS would like to consider for future use of their property.	LSS requests that nearshore CDF and CAD be retained as a viable options to be considered in the EE/CA.	This issue is currently in dispute.	Text was added to section 7.2 of the Work Plan Addendum to clarify this issue.	
39	A	8-5 / 8.1.4.2	Second and third paragraphs on surface water. There is no mention of the surface water and stormwater program currently being conducted as part of the LWG RI. This data should be adequate for evaluating baseline surface water conditions at the site. LSS again disagrees with EPA on the need for a comprehensive baseline water quality program in support of the EE/CA.	LSS has determined that the extensive, existing surface water data set is adequate for evaluating baseline surface water conditions at the site.	EPA and LSS agree that the current surface water data set is adequate for the EE/CA evaluation. No sampling will be specified in the EE/CA work plan. However, additional baseline surface water sampling will need to be proposed as a part of the removal action/design and completed before removal actions begin.	No Work Plan Addendum revisions were required for this comment.	
40	A	8-11 / 8.2.1.2	Third paragraph, second to last sentence. The additional 10% confirmation sampling seems unwarranted given the recent surface sediment collections conducted for the LWG RI. The usability of the data has been confirmed by the Category 1 validation conducted as part of this and the LWG RI studies. Although the data are aged, they are still considered useful in the characterization of the site. This redundancy is an unnecessary cost to the program.	LSS requests that the 10 percent sampling program redundancy be removed from the characterization program.	EPA agrees that the sampling proposal can reconsider all of the information being used to evaluate data gaps (i.e., including the 3D kriging and mass removal approach) and therefore the revised FSP will include the rationale for the final sample locations.	Text noting this agreement was added to section 8.2 of the Work Plan Addendum.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
41	A	8-11 / 8.2.1.2	Fourth paragraph. The two areas referenced in this paragraph have not been adequately defined in the text, tables, or figures as to their necessity. From the previous data, there is no indication that the chromium or salt plumes (or other Arkema COIs) are moving upstream of the Arkema site property. LSS does not agree with the addition of sediment stations WS/WB-82, 83 and -84. However, if the TZW stations proposed for these locations indicate an impact from site COCs, sediment sampling may be required.	LSS requests that sediment stations WS/WB-82, 83 and -84 be removed from the sampling program.	EPA and LSS agree that these details will be revisited and addressed in the FSP.	No Work Plan Addendum revisions were required for this comment.	
42	A	8-11 / 8.2.1.2	General. Based on the rationale given by EPA for conducting surface sediment sampling, we don't believe there is a need to collect all samples proposed. The primary rationale given by EPA is the need to provide baseline conditions for surface sediments. There is inadequate justification for the additional samples especially those stations upstream and south of the property line. LSS requests more information be provided for these sample locations. LSS also disagrees with the need to reoccupy 10% of the previous sampling locations. The usability of the data has been confirmed by the Category 1 validation conducted as part of this and the LWG RI studies. Although the data are aged, they are still considered useful in the characterization of the site.	LSS request that the drill guide tool in the EVS software be used to aid in the analysis of data gaps and site characterization needs for the purposes of completing the sediment investigation work. LSS also requests that the 10 percent sampling program redundancy be removed from the characterization program.	See response to 40. The revised FSP will include the rationale for the final sample locations.	Text was added to section 8.2 of the Work Plan Addendum noting that the FSP will include the sample location rationale.	
43	A	8-12 / 8.2.1.2	Analytical Strategy. There is no justification given by EPA for analyzing all surface samples for each of the methods. For example, why is EPA requesting the analysis of chloride for samples analyzed downstream of Dock 2? From the previous data, elevated levels of chloride are not expected in most areas of the in-water site.	LSS requests that chloride sampling be deleted from this section because it is not considered a recontamination COI.	EPA and LSS have already agreed on this issue. An explanation will be added in the addendum that chloride sampling is not necessary.	Text was added to section 8.2 of the Work Plan Addendum explaining this agreement.	
44	A	8-13 / 8.2.1.2	Analytical Strategy. There is no justification for analyzing dioxins/furans at these stations.	LSS request that dioxin/furan analyses be deleted from these stations	EPA and LSS agree that dioxin/furan sampling at certain stations will be needed. The revised FSP will include the rationale for the analytical strategy at each sample location.	Text was added to section 8.2 of the Work Plan Addendum explaining this agreement.	
45	A	8-15 / 8.2.1.2	Subsurface Sediment Sampling, Sampling Strategy. From the previous data, there is no indication that the chromium or salt plumes are moving upstream of the Arkema site property. LSS does not agree with the addition of sediment stations WS/WB-82, 83 and -84.	LSS requests that these stations be deleted from this section because chromium and salt are not considered recontamination COIs.	EPA and LSS agree that these details will be revisited and addressed in the FSP.	Text was added to section 8.2 of the Work Plan Addendum noting that these details will be addressed in the FSP.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
46	A	8-15 / 8.2.1.2	Subsurface Sediment Sampling, Analytical Strategy. LSS questions the need for beryllium analysis in core samples. Visual inspection of the cores and surface sediment samples should be adequate for evaluating the depth of bioturbation. In addition the depth of bioturbation will have no effect on defining the RAA Boundary and no effect on dredging analysis.	LSS requests that beryllium analysis be deleted from the analytical strategy.	EPA and LSS agree. The proposed solution will be added to the addendum or other future documents.	Text was added to section 8.2 of the Work Plan Addendum clarifying this agreement.	
47	A	8-15 / 8.2.1.2	Subsurface Sediment Sampling, Analytical Strategy. EPA has not provided justification for increasing the number of samples initially analyzed in each core from three (as stated in the revised work plan) to four samples.	LSS request that the drill guide tool in the EVS software be used to aid in the analysis of data gaps and site characterization needs for the purposes of completing the sediment investigation work.	EPA agrees to look at the change in the sample density and location based on the work plan addendum and FSP.	Text was added to section 8.2 of the Work Plan Addendum to clarify this agreement.	
48	A	8-17 / 8.2.1.3	LSS disagrees with the need for a multi-event surface water sampling program to provide baseline conditions for the Arkema site. The information obtained from the LWG RI should be adequate to address baseline conditions for this portion of the waterway.	LSS requests that the multi-event surface water sampling program be deleted.	Same resolution as 39. EPA and LSS agree that the current surface water data set is adequate for the EE/CA evaluation. No sampling will be specified in the EE/CA work plan. However, additional baseline surface water sampling will need to be proposed as a part of the removal action/design and completed before removal actions begin.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	
49	A	8-19 / 8.2.2.1 Tissue Samples - Rationale	Paragraph 1 This paragraph states “These species—crayfish, clams, smallmouth bass, and sculpin—are anticipated to support both monitoring and risk assessment. Whole-body analyses will be used to support ecological risk assessment and food web modeling to be performed as part of the Harbor-wide RI/FS.”	LSS requests that additional language be included that recognizes that not all of the suggested target species may be available or present in sufficient quantities to collect meaningful samples. This limitation of availability and abundance of target species was identified in interim RI reports and may persist in subsequent sampling in support of the EE/CA. In particular, additional explanation is needed to justify inclusion of wide home-range species (e.g., small mouth bass) whose tissue concentrations may not be clearly related to the site and whose foraging range may be large with respect to the resolution needed to define the RAA boundary.	Biota sampling for the EE/CA will be needed for several objectives, including but not limited to: (1) identifying baseline conditions in biota before the removal action, (2) assessing the impacts of the removal action on biota contaminant levels, and (3) assessing the effectiveness of the removal. The extent of biota sampling needed to meet these objectives is dependent upon the several factors, including the boundary of the removal action area, the methods used for removal, and the design of the final removal action. Therefore, the FSP/QAPP for the removal area characterization should contain language that discusses the biota sampling objectives but defers biota sampling until later in the EE/CA process. At a minimum, a FSP/QAPP will be included as a part of the final EE/CA.	Text was added to section 8.2 of the Work Plan Addendum to clarify this agreement.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
50	A	8-19 / 8.2.2.1	<p>To date the EE/CA work plan has focused on a study design to determine the extent of principal threat material and provide sufficient information to establish a boundary for the remedial action area. However, the objectives in this paragraph seem much broader and are expressed in the context of a baseline study, monitoring program, risk assessment, and food web modeling in support of the harbor-wide RI/FS.</p> <p>LSS believes that the definition of PTM and delineation of the RAA boundary should be based on a mass removal approach (discussed elsewhere in these comments). LSS supports the LWG risk assessment, food web modeling, and harbor-wide RI/FS. However, the LWG risk assessment and food web modeling have been omitted from the EE/CA to date.</p>	LSS requests that EPA revise the draft EE/CA to omit any monitoring for the Portland Harbor risk assessment and food web modeling.	LSS has already agreed to share any data generated for the EE/CA with the LWG, and EPA agreed that no specific sampling in support of the PH RI/FS will be required.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	
51	A	8-19 / 8.2.2.1 Tissue Samples - Rationale	<p>Paragraph 2</p> <p>This paragraph states “Passive tissue surrogate sampling devices (e.g., SPMDs or caged bivalves) will be deployed within areas where biota are collected to establish whether tissue surrogates can be used as a cost-effective means of reliably obtaining bioaccumulation data on the required spatial scale.”</p> <p>LSS is aware of recent publications by Sethajintanin and Anderson (2006) that describes patterns of bioavailable DDX in water. Although this is a useful technique for water exposure, LSS questions it’s applicability as a measure of success for sediment remediation.</p>	LSS requests removal of the references to the SPMD sampling procedures.	In lieu of the SPMD method, LSS has the option of proposing in the FSP an alternate data collection method as a surrogate, presenting the rationale for how these data could be collected another way, or presenting the rationale for why these data are not needed.	Text was added to section 8.2 of the Work Plan Addendum to clarify this agreement.	
52	A	8-19 / 8.2.2.1 Tissue Samples - Rationale	<p>Paragraph 2 (cont.)</p> <p>The remainder of the paragraph describes methods for exploring the SPMD data and possible correlations with measured concentrations in concurrently collected fish tissue samples. LSS is concerned that SPMD technique and correlation analysis is a research hypothesis with an uncertain outcome.</p>	LSS requests removal of the SPMD analysis from the monitoring program or a more detailed explanation of the hypothesis and assurance of its success and cost-effectiveness in comparison to other monitoring techniques. At a minimum, LSS requests that an example of where the SPMD method has been used successfully in the past to monitor and verify sediment remediation success be provided.	Same agreement as 51.	Text was added to section 8.2 of the Work Plan Addendum to clarify this agreement.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
53	A	8-19 / 8.2.2.1 Tissue Samples - Rationale	Paragraph 2 (cont.) The paragraph concludes with the statement that "Details for use of passive surrogate devices will be provided in the QAPP developed to respond to this Work Plan." LSS believes that EPA is placing the burden of proof for the feasibility of this technique on LSS without sufficient justification in the EE/CA work plan. Other indications that this technique needs additional thought and justification are its complete absence in subsequent sections of the EE/CA for <i>Sampling Strategy</i> and <i>Analytical Strategy</i> .	LSS requests removal of the SPMD technique from the monitoring program or at a minimum provide justification and specific examples of where it has been used and was effective to successfully monitor and verify sediment remediation success.	Same agreement as 51.	Text was added to section 8.2 of the Work Plan Addendum to clarify this agreement.	
54	A	Attachment B	The Technical memorandum (Attachment B-Isopleth Methods) defines an isopleth as "a line drawn on a map through all points of equal value of some measurable quantity, in this case concentration." The Isopleths maps for COIs in sediments by depth interval fail to meet this very definition. Lines drawn on the maps in this case grid cells, which define areas of equal value, contain sample points that do not match the values. The isopleths areas should contain points of equal value as described in the definition.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	
55	A		The Technical memorandum (Attachment B-Isopleth Methods) also states that "In some cases the data from the sample points shapefiles does not match the values in the resultant grid cells" followed by an explanation. This explanation is qualitative in nature while the Kriging methodology provides output variance as a quantitative tool to assess the degree of confidence or uncertainty with methodology. There is no mention in the memorandum of the output variance of prediction raster. Without the output variance information, there is no basis to have confidence in the Kriging predictions.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
56	A	Attachment B	The Technical memorandum states that “In order to make the resultant grid cell values match the point data as close as possible the variable search radius was set to 2.” However, the variable search radius of 2 seems too low considering the density of the sample points and the lack of agreement in the predicted results. A variable search radius of at least 4 would seem more appropriate so 4 points of equidistance in different directions would all have influence over the predicted value.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	
57	A	Attachment B	The statement in the memorandum that “the grid cells are still accurately portraying the estimated concentrations” is concerning. Accuracy is a term not normally associated with the probabilistic approach of Kriging but instead the terms of confidence or uncertainty are more commonly used. When the input sample data grossly differ from the resulting predictions, there is a high degree of uncertainty and low degree of confidence. Interpolation technique predictions are not accurate when the sample input data is not honored.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	
58	A	Attachment B	The sample data z or elevation dimension is simplified in order to perform 2D Kriging. The preprocessing of separating sample points by depth interval breaks the z-dimension into unequal interval depths (0-1 ft, 1-4ft, 4-8ft, > 8ft). The result essentially is 4, 2 dimensional planes that simplify the vertical dynamics associated with the contamination. This limits weighted average of neighboring pairs performed by the Kriging to arbitrary depth intervals.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	
59	A	Attachment B	For each depth interval, only the highest recorded values are used as input for interpolation. The interpolation result is skewed toward high concentrations at arbitrary depth intervals and ignores the known values for lower concentrations. Averaging of sample concentrations would be more appropriate than disregarding lower concentration sample values.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
60	A	Attachment B	Interpolation extends beyond limits of the data set and the analysis area as defined 6.1.3.1. The use of a boundary to limit the interpolation to the analysis area will lead to different results.	LSS proposes that the two-dimensional kriging analysis and figures be removed from the EPA Work Plan. LSS has completed three-dimensional kriging of total DDx that accurately represents the data, has appropriate spatial weighting, and that honors every data point in the analysis area. LSS proposes using figures for total DDx that are derived from its three-dimensional kriging analysis.	Two-dimensional kriging will remain in the Work Plan; however, three-dimensional kriging can also be utilized for analysis of data gaps. A statement to this effect can be placed in the addendum.	Text was added to section 8.2 of the Work Plan Addendum noting this agreement.	

EPA does not necessarily endorse or agree with the statements made in this forward section.

ATTACHMENT TO FEBRUARY 19, 2008 LETTER
RESOLUTION OF 'B' COMMENTS ON THE DRAFT ARKEMA EARLY
ACTION EE/CA WORK PLAN PREPARED BY PARAMETRIX FOR US EPA

This document contains a complete set of Legacy Site Services (LSS) comments on the Draft Arkema Early Action EE/CA Work Plan prepared by Parametrix for US Environmental Protection Agency (EPA Work Plan). The comments contained in this document include comments that LSS is willing to accept as well as comments that will need to be addressed prior to finalization of the EPA work plan for LSS to forgo formal dispute. Also, LSS notes that a significant number of the "non-responsive" comments included in EPA's September 21, 2006 letter disapproving the LSS Revised Work Plan are not addressed in the EPA Work Plan. Many of these comments included requirements that have not been met in the EPA Work Plan although these requirements were the basis for EPA's decision to disapprove and reserve to itself modification of the LSS Revised Work Plan. It appears that EPA has set different standards for Parametrix and LSS, and because LSS seeks assurance that the EPA Work Plan is sufficient to meet all EPA standards and will not be modified after these current negotiations are completed, LSS requests that EPA withdraw all of the "non-responsive" comments that are not addressed in the EPA Work Plan. For a more complete explanation of the issues related to the dispute, see the text of the July 13, 2007 letter.

Explanation of table column headings:

LSS Comment Number:	A sequential number applied by LSS to identify each individual comment in the table.
Comment Priority:	A hierarchical designation provided for each comment to indicate the level of priority placed on the comment by LSS. The "A" designation is a comment that will require further technical discussion and resolution to EPA's and LSS' satisfaction for LSS to forgo formal dispute. LSS will not dispute the "B" designated comments if the "A" designated comments are satisfactorily resolved.
EPA Work Plan Page/Section Number	Identifies the Page and Section number of the EPA work plan to which the comment is directed.
Comment/Problem Statement	Provides LSS' comment and/or problem statement that requires resolution.

Solution	Provides LSS' proposed solution for resolution of the comment/problem.
Comment Resolution	Provides the resolution of the comment.
EPA comment number	Provides a cross-reference to the original comment number provided by EPA on the September 26, 2005 work plan, where applicable.

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
1	A	All/ All	EPA's work plan was non-responsive to a total of 46 government team comments that were provided in its work plan disapproval letter to LSS dated September 21, 2006.	LSS requests that EPA retract the "non-responsiveness" determination made in EPA's September 21, 2006 letter for all of these comments.	See resolution to LSS Comment No.1 in the A comment set.	No specific work plan modifications are required as a result of this comment.	16, 26, 32, 33, 70, 86, 88, 96, 97, 121, 130, 144, 147, 199, 140, 233, 234, 237, 242, 251, 257, 271 295, 300, 304, 305, 306, 307, 311, 313, 320, 321, 322, 323, 327, 361, 376, 439, 451, 452, 435, 436, 437, 498, 499, and 500
61	B	2-1/ 2.1	Arkema/LSS does not believe there is sufficient information to determine optimal habitat characteristics for this diversity of organisms. Furthermore, the term optimal is not defined but implies "of highest quality."	LSS suggests replacing the word "optimal" with "useful."	LSS agrees to forgo this comment in order to finalize the EE/CA work plan and work plan addendum.	No modification made in Work Plan Addendum.	
62	B	All / All	New LWG data submitted to EPA during the 10 months that EPA had possession of the Revised Draft EE/CA Work Plan (i.e., July 14, 2006 to May 11, 2007) was not incorporated into the data screening or figures. The upland data that EPA requested to be included in the work plan was not incorporated into EPA's work plan (with the exception of groundwater data for the riverbank monitoring wells, which was included in the revised draft EE/CA work plan [Integral 2006]).	LSS suggests that all of the available LWG data be included in the work plan.	EPA believes that these data can be addressed later in FSPs or other EE/CA documents as applicable, appropriate, and assuming the data are received in a timely manner.	No specific additional data was added to the Work Plan Addendum as a result of this comment.	16
63	B	2-1 to 2-3 / 2.1	There is no direct reference to groundwater in Section 2.1, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this item may not be critical to the current Work Plan. To the extent needed, a concise summary can be provided in the Work Plan addendum.	No text changes were required as a result of this comment.	234
64	B	2-2 / 2.1.2	The first sentence in Section 2.3 is incorrect. The Willamette River merges with the Columbia River at <u>Columbia</u> RM 103, not <u>Willamette</u> River RM 103.	This statement should be corrected.	This error will be corrected in the work plan addendum.	Error corrected in Work Plan Addendum.	NA
65	B	Figure 2-4 / 2.2.3	Additional features described in Section 2.2.3 were not identified in Figure 2-4 as requested by EPA in its work plan disapproval letter to LSS.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this item can be addressed as part of the FSP data gap analysis or addressed in other EE/CA or upland source control documentation.	No revisions were made in the Work Plan Addendum.	237
66	B	Figure 2-4 / 2.2.3	Section 2 figures in EPA's work plan do not show the location of electrolysis processing, which EPA requested in its work plan disapproval letter to LSS.	LSS requests that the "non-responsiveness" determination be retracted.	EPA's assumes that if not already present in existing documents, this comment can be addressed in future source control documents.	No revisions were made in the Work Plan Addendum as a result of this comment.	498
67	B	2-9 / 2.2.3	Section 2.2.3 does not clarify if any site dredge projects produced any sediment chemistry data, which EPA requested in its work plan disapproval letter to LSS.	LSS requests that the the "non-responsiveness" determination be retracted.	EPA believes this comment is relevant to future work and can be addressed in FSPs as applicable. All information available to LSS was provided in previous drafts of the EE/CA work plan.	No revisions were made in the Work Plan Addendum as a result of this comment.	499

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
68	B	2-10 / 2.3	The third paragraph in Section 2.3 states that current site activities are upland IRMs to address perchlorate and hexavalent chromium in groundwater. These IRMs were discontinued because a barrier wall and groundwater extraction system was chosen as the upland site remedy due to the EE/CA schedule.	LSS requests that the work plan text be revised accordingly.	This error will be corrected in the work plan addendum	Text was added to section 2.3 of the Work Plan Addendum.	NA
69	B	2-10 / 2.3	The LWG activities summarized in Section 2.3 are not up to date. No details are provided about the ongoing stormwater sampling that LSS is conducting as part of the stormwater IRM.	LSS requests that the work plan text be revised to provide the updated information.	EPA believes this comment can be addressed by the FSP or in future EE/CA documents as needed.	Text was added to section 2.3 of the Work Plan Addendum.	NA
70	B	3-1 to 3-13 / 3.1	A total of 13 field sampling, data, or site characterization reports were submitted to EPA by the LWG during the 10 months that EPA had possession of the Revised Draft EE/CA Work Plan (i.e., July 14, 2006 to May 11, 2007). None of these reports was incorporated into the Summary of Previous Investigations (Section 3.1) of EPA's Work Plan. It is critical that these reports be incorporated into the work plan because they fill some of the data gaps at the site. The reports are (the date submitted to EPA precedes the title of the report): <ol style="list-style-type: none"> 2007-05-01: Round 3 Sampling for Pre-Breeding White Sturgeon (Acipenser Transmontanus) Tissue Field Sampling Report. 2007-04-30: Round 3A Winter 2007 High-Flow Surface Water Event Field Sampling Report. 2007-04-16: Round 3A Sediment Trap Sampling, Quarter 1 Field Report. 2007-04-09: Round 3A Upstream & Downstream Sediment Field Sampling Report. 2007-04-06: Round 3 Lamprey (Lampetra Sp.) Phase 1 Toxicity Testing Report. 2007-02-21: Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report. 2007-01-15: Round 3A Fall 2006 Stormwater Surface Water Event Field Sampling Report. 2006-12-15: Round 3 Sampling for Lamprey (Lampetra Sp.) Tissue, Field Sampling Report. 2006-12-08: Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River. 2006-12-08: Round 3A Summer 2006 Low-Flow Surface Water Event Field Sampling Report. 2006-10-20: Round 3A January 2006 High-Flow Surface Water Data Report. 2006-09-01: Round 2 Benthic Tissue and Sediment Data Report. 2007-08-07: Round 2 Groundwater Pathway Assessment, Transition Zone Water Site Characterization Summary Report. 	LSS requests that the additional LWG report data be updated in the work plan.	EPA believes this comment can be addressed by the FSP or in future EE/CA documents as needed and to the extent the data are relevant and available in a timely manner.	Text was added to section 3.1 of the Work Plan Addendum.	NA

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
71	B	3-1 / 3.1	Section 3.1 did not include the text <i>“there is no other environmental data prior to 1996”</i> , which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	The comment will be addressed in the Work Plan addendum.	Text was added to section 3.1 of the Work Plan Addendum.	121
72	B	3-1 to 3-13 / 3.1	EPA requested in its work plan disapproval letter to LSS that “Section 3 of the revised draft work plan still does not review or discuss actual existing data as the title (Review of Existing Data) suggests-it only lists the studies that were done”. EPA’s work plan did not did not make any significant modification to this section, a discussion of existing data was not added, and the title of the section remained “Review of Existing Data”. This comment also refers to the CSM in Section 4.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes this comment can be addressed in future documents as needed to further the data gap analysis.	No specific revision to the Work Plan Addendum was required for this comment.	439, 451, and 452
73	B	3-2 / 3.1.1	Footnote 2 on page 3-2 does not specify the extent (depth) of transition-zone water (TZW) at the site, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes the FSP can address TZW samples to the extent they are needed.	No addition to the Work Plan Addendum was required as a result of this comment.	242
74	B	3-2 / 3.1.1	No additional clarification was provided in footnote 2 on page 3-2 does on transition-zone water (TZW) at the site, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes the rationale for TZW samples if needed should be discussed in the FSP.	No addition to the Work Plan Addendum was required as a result of this comment.	257
75	B	Figure 3-2 / (referenced in 3.1.5)	Stations RB-7 and RB-10 through RB-12 are not shown on Figure 3-2, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes that this can be addressed in the figures prepared for the QAPP/FSP.	No addition to the Work Plan Addendum was required as a result of this comment.	70
76	B	3-3 / 3.1.5 (footnote 4)	EPA requested in its work plan disapproval letter to LSS that “Arkema define beach sediment from the ordinary high water mark or top of bank riverward”. However, riverbank soils are defined in footnote No. 4 of EPA’s work plan as the area between mean high water and ordinary high water.	LSS requests that the “non-responsiveness” determination be retracted.	This comment should be clarified in the Work Plan addendum.	Text was added to section 3.1 of the Work Plan Addendum to clarify this definition.	361
77	B	3-3; 3-16 to 3-20 / 3.1.6	There was no clarification on the difference between sediment groundwater and any other groundwater, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	This comment will be addressed in the addendum.	Text was added to section 3.1 of the Work Plan Addendum.	26
78	B	Figure 3-2; 3-3 to 3-4 / 3.1.7	Station 07B022 was added to the text in Section 3.1.7, but the station location is not shown on the historical sediment and riverbank station location figure (Figure 3-2). Note that Station 07B022 is shown on Figure 3-1a (all historical station locations).	LSS suggests that the figure be revised revision to show Station 07B022.	EPA believes this comment can be addressed by the FSP or in future EE/CA documents as needed.	No revisions were required in Work Plan Addendum as a result of this comment.	NA
79	B	3-13 / 3.1.27	The riverbank soil sampling work was completed March 19-23, 2007 and included a total of 65 riverbank samples. The number of stations was provided in the revised SAP that was approved by DEQ and EPA in January 2007.	LSS suggests that the text be revised and updated to reflect the recent sampling effort.	EPA believes this comment can be addressed in future EE/CA documents as needed.	No revisions were required in Work Plan Addendum as a result of this comment.	NA
80	B	Figures (Cross-Sections) / 3.2	No additional cross-sections were provided in EPA’s work plan, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes that additional cross sections, if necessary, can be developed as part of the upland hydraulic control design process.	No Work Plan Addendum revisions were required.	500

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81	B	3-15 to 3-16 / 3.2.1.3	No additional cross-sections were provided, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes additional cross sections, if necessary, can be developed as part of the upland hydraulic control design process.	No Work Plan Addendum revisions were required.	86
82	B	3-20 / 3.2.2.1	EPA stated in its work plan disapproval letter to LSS that “The upland groundwater chemistry results have not been referenced/presented adequately. Reviewers are not able to efficiently identify data sources or location within the document”. Section 3.2.2.3 of EPA’s work plan was not modified to incorporate groundwater chemistry.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes additional cross sections, if necessary, can be developed as part of the upland hydraulic control design process.	No Work Plan Addendum revisions were required for this comment.	295
83	B	3-19 / 3.2.2.1	EPA requested in its work plan disapproval letter to LSS that the last paragraph in the “Round 2 Groundwater Pathway Assessment” be revised so that the conclusions are clear. EPA did not revise this section of the work plan to clarify the conclusions.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans.	No Work Plan Addendum revisions were required for this comment.	300
84	B	3-17 / 3.2.2.1	The second paragraph on page 3-17 states that “Detailed cross-sections with selected COIs plotted are provided in Appendix A”. The cross-sections provided in Appendix A are incomplete. They (1) do not extend from the upland source areas to the riverward extent of data; (2) do not include any LWG data; and (3) do not include a number of key site chemicals. LSS prepared detailed cross-sections that extended from the source areas to the riverward extend of data, included LWG data, and also were generated for more of the key site chemicals. These cross-sections were provided in the map folio in Revised Draft EE/CA work plan (Integral 2006). EPA has replaced the cross-sections provided in the Revised Draft work plan with cross-sections in EPA’s version of the work plan that provide less information and are not responsive to EPA’s comments. These latter cross-sections are therefore non-responsive.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes that any additional cross-sections, if necessary, can be documented as part of the upland source control effort.	No Work Plan Addendum revisions were required for this comment.	86
85	B	Figure 2-4 / (referenced in 3.2.1.3)	Fill history was not depicted on the figures, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes that riverbank information is still a relevant need and should be addressed in the Work Plan addendum or FSP data gap analysis. All information available to LSS was provided in previous drafts of the EE/CA work plan.	Table 2-3 and Figure 2-4 are included with the Work Plan Addendum.	88
86	B	3-16 / 3.2.1.3	Columbia River Basalt is the name of a geologic group (consisting of a number of individual geologic formations) and should be capitalized.	This typographical error should be corrected.	EPA believes this comment can be addressed in the work plan addendum or in future EE/CA documents as needed.	Text noting this change was added to the Work Plan Addendum.	NA
87	B	3-20 / 3.2.2.3	Figures depicting a conceptual hydrostratigraph model (uplands to in-water) were not provided, which were required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes this is still a relevant comment; however, the extent to which it can be addressed is dependent on the upland hydraulic control design process.	No revisions to the Work Plan Addendum are required by this comment.	96
88	B	3-20 / 3.2.2.3	Figures depicting potentiometric surface in map or cross-sectional view for the site (uplands to in-water) were not provided, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the “non-responsiveness” determination be retracted.	These depictions were provided as Figures 3-7, 3-8, and 3-9 in the July 14, 2006 work plan. EPA believes that any revisions to these figures, if necessary, will be generated as part of the upland hydraulic control design process.	No revisions to the Work Plan Addendum are required by this comment.	97

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
89	B	3-20 / 3.2.2.3	EPA stated in its work plan disapproval letter to LSS that “The hydro-geo model as presented needs to be improved to display flow relationships in plan view and x-section view. There are significant data gaps surrounding groundwater flow”. EPA’s work plan did not include additional maps and cross-sections to address this issue.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes this data gap can be addressed as part of the upland process.	No revisions to the Work Plan Addendum are required by this comment.	251 (originally)
90	B	3-20 / 3.2.2.3	Figures 3-11 and 3-12 are referenced in the second paragraph of Section 3.2.2.3 but are not included in the Work Plan.	LSS requests that these figures be provided in the work plan.	This comment will be addressed in the work plan addendum or in future EE/CA documents as needed	Figures 3-11 and 3-12 do not exist.	NA
91	B	Fig. 4-1,-2 / 4	<p>It appears that the revised Figures 4-1 and 4-2 are simply reproductions of the Portland Harbor CSM figures. Integral’s Revised Work Plan presented CSM figures that were designed with considerations to site-specific conditions. LSS does not agree that Portland Harbor-wide CSMs are as effective as customized site-specific models.</p> <p>The original comment (EPA Comment #271) stated that NAPL should be included as a secondary source so that cosolvent COI exposure is clearly presented. The only two secondary sources in the revised figures are on-site surface soil and on-site subsurface soil. In fact, the new figures don’t even include “manufacturing process residue” as a primary source. This source included NAPL in the two previous work plan iterations. LSS believes that the figure revisions are non-responsive in terms of addressing the contents of EPA’s Comment 271.</p>	LSS requests that the “non-responsiveness” determination be retracted.	<p>This comment has been addressed by subsequent agreements between EPA and LSS (see Category A comments).</p> <p>NAPL, to the extent it is present, is a potential secondary source and will be addressed as part of the upland hydraulic control design process.</p>	This comment has been addressed by other Category A comments. No specific revisions to the Work Plan Addendum were required by this comment.	271
92	B	Figure 4-3 / 4	EPA required revisions to Figure 4-3 in the Revised Work Plan were not made. EPA did not add the so-called “Lot 1 DDT Trench” to the figure after stating that Arkema/LSS was non-responsive indicating that it did not exist. Clarification was not provided by EPA regarding this comment.	LSS requests that the “non-responsiveness” determination be retracted.	<p>EPA believes this comment is still relevant to recontamination analysis and can be addressed in a FSP document. . However, LSS has reviewed the April 2007 groundwater data for the Arkema site and the data indicate there is no DDT in shallow groundwater exceeding 0.2 ug/L on Lot 1 or in the vicinity of the former Lot 1 trench and therefore the former trench is not considered a source of DDT for recontamination purposes (ERM October 2007).</p> <p>EPA needs to review the referenced ERM document before deciding whether it should be included in a FSP document.</p>	No specific revisions to the Work Plan Addendum were required by this comment.	321
93	B	Figure 4-3 / 4	EPA did not add “materials loading areas over the in-water portion of the site” to Figure 4-3. EPA stated that Arkema/LSS was “non-responsive” for not doing so in the Revised Work Plan. It appears that EPA was non-responsive to its own request.	LSS requests that the the “non-responsiveness” determination be retracted.	EPA believes this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans.	No revisions to the Work Plan Addendum were required by this comment.	322

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94	B	Figure 4-3 / 4	EPA's Work Plan does not contain the "additional requested figures" for presenting the "plume locations and potential collocation with other chemicals." References are made to Figure 4-3, which was maintained from the Revised Work Plan, as well as figures contained in the Upland RI Report (e.g., those referenced in the Revised Work Plan). LSS is not clear how EPA resolved the issue in EPA Comment 305 that was declared to be "non-responsive" on the part of LSS.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans. The upland hydraulic control design should capture plumes.	No revisions to the Work Plan Addendum are required by this comment.	305
95	B	4	Same issue as LSS Comment #94 (EPA Comment #305) above. Additional requested figures were not developed or provided in EPA's Work Plan.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans. The upland hydraulic control design should capture plumes.	No revisions to the Work Plan Addendum were required by this comment.	306
96	B	4	See LSS Comment #94 above (EPA Comment #305). EPA's Work Plan does not include the identification of additional groundwater plumes.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans. The upland hydraulic control design should capture plumes.	No revisions to the Work Plan Addendum were required by this comment.	307
97	B	Figure 4-3 / 4	Perchlorate is still mapped out at 20 mg/l in Figure 4-3. EPA did not revise this figure to reflect the directed risk concentration of 3.6 µg/l even though the use of the 20 mg/l perchlorate level by Arkema/LSS was considered non-responsive by EPA.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes the 3.6 µg/l value should be used and can be referenced in the Work Plan addendum.	No revisions to the Work Plan Addendum were required by this comment.	130
98	B	Figure 4-2 / 4	LSS would like clarification regarding the definition of "Beach Sediment," which is an exposure medium in the Human Health Risk Assessment CSM. EPA stated that the Revised Work Plan Human Health CSM lacked clarity between upland source control/RI and the EE/CA for soils. The Revised Work Plan distinguished between "riparian soil" and "riverbank sediment" in the CSM. LSS understands that the EE/CA should include all soils from the top of the riverbank to the river. However, it is unclear to LSS whether "beach sediment" includes both "riparian soil" and "riverbank sediment." Furthermore, "Willamette River sediment" is included as an exposure medium, which is defined as material below mean high water.	The term "beach sediment" should be defined on the CSM figure in EPA's Work Plan. Also clarification should be provided on the difference between beach sediment and "Willamette River sediment" which is defined as material below mean high water.	Clarification will be provided in the work plan addendum.	Text was added to section 4.1 of the Work Plan Addendum.	473
99	B	4-4 / 4.1.3	EPA indicated that LSS was non-responsive to the original comment: "MCB DNAPL contributes to the MCB groundwater plume represents an 'ongoing source' to groundwater, and to the river." The Revised Work Plan stated in the last sentence of the second paragraph in Section 4.1.2.3 (Groundwater) that "DNAPL likely contributes to the continuing presence of dissolved-phase MCB in groundwater observed in upland soils and sediments." EPA's Work Plan retained that sentence without revision. It does not appear that the comment was treated differently in EPA's Work Plan.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes the referenced sentence should be placed in the Work Plan addendum for clarification.	Text was added to section 4.1 of the Work Plan Addendum	32

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100	B	4-4 / 4.1.3	The Revised Work Plan referenced several groundwater figures from ERM's Upland RI Report. However, EPA indicated that this was inadequate and groundwater elevations and flow directions must be presented in figures within the document. EPA included one additional figure from the Upland RI Report, which is essentially a single cross section of the site. The references of Upland RI Report figures from the Revised Work Plan were maintained in EPA's version of the Work Plan. If this type of reference was considered inadequate, why didn't EPA include the aforementioned figures depicting elevations and flows? LSS does not believe that EPA was responsive to its original comment.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes the requested information (if needed) should be referenced relative to ongoing upland source control efforts.	No revisions to the Work Plan Addendum were required by this comment.	304
101	B	Table 4-1 omission / 4.1.3	Table 4-1 (Detections of Selected COIs in Groundwater and Transition-Zone Water) was omitted from Section 4.1.2.3 of the Revised Work Plan. LSS believes that his was an integral component of the conceptual site model. This presentation provided readers with an effective guide to locations of the highest and lowest detections of selected COIs at the site. Please provide an explanation as to why this table was not included in EPA's Work Plan.	LSS requests that Table 4-1 be replaced in the work plan or an explanation for its deletion be provided.	A statement will be provided in the addendum that this table will be complete in the EE/CA report and will include newer data.	Text was added to section 4.1 of the Work Plan Addendum.	305
102	B	4-5 / 4.1.4	The introductory paragraph to Section 4.1.4 in EPA's Work Plan (Other COI Sources and Release Mechanisms) was abbreviated to a single sentence from the Revised Work Plan ("Other COIs known to occur in environmental media at the site are discussed below"). The fact that these additional chemicals were identified from data screening is important to this section. In addition, the original paragraph included a sentence, which reiterated the matrices evaluated as part of the EE/CA process. LSS believes that this section was unnecessarily shortened.	LSS requests that the deleted text be replaced or an explanation for its deletion be provided.	This comment can be addressed in the work plan addendum or in future EE/CA documents as needed.	Text was added to section 4.1 of the Work Plan Addendum.	N/A
103	B	Select figures / 4.1.5	EPA stated that LSS was non-responsive because the following site features were not presented in Revised Work Plan figures: areas of excavation, location of the full-scale soil vapor extraction system, stormwater system improvements, locations of the polysulfide injections, and locations of the per sulfate injections. However, EPA's work plan does not include revised figures with these features, and remaining consistent with the Revised Work Plan, refers to the Upland RI Report. It appears that EPA was non-responsive to the original comment.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes the requested information will be referenced relative to ongoing upland source control efforts.	No revisions to the Work Plan Addendum were required by this comment.	311
104	B	4-8 / 4.1.5	LSS does not agree that the inclusion of "an evaluation of hydraulic controls" was non-responsive to the original comment. Since the submittal of the Revised Work Plan, the project has evolved further and a hydraulic control approach is in fact being developed. EPA's Work Plan simply states that the approach is being developed but does not expand upon its description or current design status. It is stated that "a draft source control IRM scoping memorandum is currently under review."	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes hydraulic control needs to be included in the EE/CA since upland controls will be evaluated for adequacy. EPA believes this item can be clarified in the Work Plan addendum.	Text was added to section 4.1 of the Work Plan Addendum.	33

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105	B	4-9 to 4-11 / 4.2	Apart from some minor additional text and edits in this section (4.2 – Transport Pathways), the release mechanism descriptions have not been reorganized or expanded. LSS does not believe that EPA's revised section represents more "clearly presented" release mechanism descriptions.	LSS requests that the "non-responsiveness" determination be retracted.	EPA deems that this comment is no longer relevant to the May 11, 2007 and July 14, 2006 Work Plans.	No revisions to the Work Plan Addendum were required by this comment.	323
106	B	4-9 to 4-11 / 4.2	EPA stated that it was "impractical to assume the stormwater piping system is leak free." However, EPA's Work Plan does not address the potential for stormwater piping leaks and/or failures. LSS does not believe that EPA was responsive to this comment.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this comment will be addressed in the Work Plan addendum when discussing the recently collected storm water data.	Recent stormwater data are discussed in the response to comment 69.	327
107	B	4-10 / 4.2.2	The Revised Work Plan did not define "temporary cover systems" as (e.g., asphalt pavement). LSS does not understand why EPA determined that this was non-responsive. EPA's Work Plan is consistent with the Revised Work Plan stating the following: "temporary covers systems such as asphalt pavement..."	LSS requests that the "non-responsiveness" determination be retracted.	EPA deems that this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans. EPA believes the referenced temporary cover systems are relevant to storm water/source control measures as they are made available.	No revisions to the Work Plan Addendum were required by this comment.	313
108	B	4-10 / 4.2.3	Attachment A (Technical Memorandum – Groundwater and Stormwater Loading Estimates) is referenced in this section. The letter cites Attachment B for a presentation of the raw calculations, however, Attachment B was not provided with the work plan. Per David Livermore's request, Attachment B was provided to Integral on June 29, 2007). Parametrix's calculations are being evaluated.	LSS did not receive the calculations with EPA's work plan but received the materials on June 29, 2007. LSS is currently reviewing the loading estimates and will provide additional comments when the review is complete.	The loading calculations to be presented in the Work Plan addendum will be reviewed (see LSS Comment No. 5). Hydraulic control may make this comment irrelevant.	Loading calculations are presented in tables 2-2 and 4-5 and discussed in section 4.2 of the Work Plan Addendum.	300
109	B	4-11 / 4.2.4	EPA's Work Plan does not provide a "clear discussion of stormwater migration to soil or groundwater via leaking from the stormwater system." EPA determined that LSS was non-responsive for not providing this discussion.	LSS requests that the "non-responsiveness" determination be retracted.	EPA deems this comment is no longer relevant provided the upland process provides this information.	No revisions to the Work Plan Addendum were required by this comment.	320
110	B	4-12 / 4.3	EPA defined "riverbank sediments" as soil and waste material between the ordinary high water (OHW) and the top of the bank. However, it had been previously determined that riverbank sediments were defined as materials between OHW and mean high water (MHW) and riparian soils were present between MHW and the top of bank. It is important that these definitions are used consistently during the EE/CA.	LSS requests that the text throughout the work plan be revised for consistency. It is important that these definitions are used consistently during the EE/CA.	This comment will be addressed by providing a clear definition in the work plan addendum and in future EE/CA documents as needed.	Text was added to section 4.2 of the Work Plan Addendum.	N/A
111	B	Figures (GW maps) / 3 and 4	No groundwater elevation figures were added to EPA's work plan, which was required by EPA in its work plan disapproval letter to LSS.	LSS requests that the "non-responsiveness" determination be retracted.	EPA believes this is still a relevant comment. Updates to the requested information can be captured in a future document as they become available. The July 14, 2006 work plan provided groundwater elevation figures as requested by EPA (e.g., see Appendix E, Figures 4-6, 4-7, 4-14, 4-15, 4-17 of Integral 2006).	No revisions to the Work Plan Addendum were required by this comment.	304

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112	B	3-1 to 5-7 / 3, 4, and 5	EPA stated in its work plan disapproval letter to LSS that “EPA directed Arkema to include upland RI data in its June 12, 2006 letter to Arkema”. EPA’s work plan did not include Upland RI data except for groundwater data from the riverbank monitoring wells, which was also included in the Revised Draft EE/CA work plan (Integral 2006). These comments were originally directed toward Section 2, but now include Sections 3, 4, and 5.	LSS requests that the “non-responsiveness” determination be retracted.	EPA believes these data may still need to be included in future documents (or by reference) to evaluate data gaps. The Upland RI which was included in the July 14, 2006 EE/CA Work Plan included the entire upland data set available at that time (Appendix E of Integral 2006).	Text was added to section 4.2 of the Work Plan Addendum.	435, 436, and 437
113	B	5-1 / 5	Last paragraph – The omission of toxicity testing and tissue residue data is inconsistent with the use of this information in the harbor wide RI.	LSS requests that the site-specific toxicity testing and tissue residue data be included to be consistent with the harbor wide RI.	EPA no longer feels this comment to be relevant However, LSS has committed to include relevant LWG-generated data for the EE/CA evaluation assuming it is collected and reported in a timely manner.	Text was added to section 4.2 of the Work Plan Addendum.	NA
114	B	6-2 / 6.1.1	Last paragraph – According to EPA (1991) the phrase “...or other highly mobile materials...”	LSS requests that this be revised to state “...or other highly mobile <u>source</u> materials...”	This comment can be addressed in the work plan addendum and in future EE/CA documents as needed.	Text was added to section 6.1 of the Work Plan Addendum.	
115	B	6-3 / 6.1.3.1	Development of the Analysis Grid –Grid size.	LSS requests justification in the text for the selection of a 50X50 ft grid.	This comment can be addressed in the work plan addendum and in future EE/CA documents as needed.	Text was added to section 6.1 of the Work Plan Addendum.	
116	B	6-5 / 6.1.3.1	Second Bullet –Sample results with multiple dilutions.	LSS requests clarification as to how the dilutions were handled in the screening process and confirm that only one result for each compound was reported for each sample (e.g., if a particular sample was run multiple times with different dilutions, was only one result used in the screening process?)	This comment can be addressed in the work plan addendum and in future EE/CA documents as needed.	Text was added to section 6.1 of the Work Plan Addendum.	NA
117	B	6-7 / 6.2	Paragraph 7 “Concentrations of dioxin/furan TCDD TEQ, total TCDD TEQ, and total endrin are equally high relative to their SLVs, as are concentrations of DDX (Table 6-1).” Relative comparisons among substances are not relevant. The scale for comparisons should focus on the benchmarks established for each chemical. The comparisons are also of limited value since Table 6-1 presents only maximum values and does not provide any meaningful comparisons based on overall contaminant distributions and patterns of chemical concentrations across the site and in Portland Harbor.	LSS requests that this sentence be deleted and that only meaningful comparisons to chemical benchmarks, contaminant distributions, and patterns of chemical concentrations across the site and in Portland Harbor be made in the text and tables.	This comment can be addressed in the work plan addendum and in future EE/CA documents as needed.	Text was added to section 6.2 of the Work Plan Addendum.	

Arkema EE/CA Comments

LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
118	B	6-9 / 6.4	Evaluation of Recontamination Potential General Comment - Although recontamination is an important issue, it's treatment in this section is highly redundant with material provided in previous this sections, rambles without making a significant point, and seems out of proportion to concept of PTM.	LSS requests that the redundant material in this section be removed.	This comment will be addressed in the work plan addendum.	No revisions to the Work Plan Addendum were required by this comment.	
119	B	6-11 / 6.4.1	Paragraph 5 This paragraph seems to contradict itself, by stating variously that recontamination potential is "unknown," "low" or "significant."	LSS requests that the paragraph be deleted or revised to make a consistent point concerning recontamination.	The referenced paragraph will remain as written.	No revisions to the Work Plan Addendum were required by this comment.	
120	B	7-3 / 7.1	Paragraph below bullets, last sentence.	LSS requests that "will be" be removed from end of sentence.	LSS no longer feels this comment to be relevant.	No revisions to the Work Plan Addendum were required by this comment.	
121	B	7-5 / 7.3	Reference to "thin-layer <u>caps</u> ."	LSS requests that the wording be changed to thin-layer placement to reflect EPA Sediment Guidance.	This comment can be addressed in the work plan addendum and in future EE/CA documents as needed.	Text was added to section 7.3 of the Work Plan Addendum.	
122	B	8-4 / 8.1.3	Last paragraph. Additional information on sedimentation is <u>only</u> required if piers are removed as part of remedy and <u>only</u> necessary after removal of piers concurrently with final design of removal action. This information will not be required as part of the EE/CA and not necessary for work plan. However, it may be considered in the design phase of the project.	LSS requests that the need for additional sedimentation data be determined after the remedy is selected in the EE/CA.	This comment can be addressed in the work plan addendum or in future EE/CA documents as needed.	Text was added to section 8.1 of the Work Plan Addendum.	
123	B	8-4 / 8.1.4.1	End of second paragraph.	LSS request that the words "dioxin-like" before PCBs be deleted.	As defined in the May 11, 2007 EE/CA Work plan, analysis of chlorinated dioxins/furans will be required for a subset of samples for characterization of the RAA, Analysis of dioxin-like PCBs will not be required. However, both chlorinated dioxins/furans and dioxin-like PCBs will be analyzed in the sediments off of the Arkema facility after the removal is completed. This information will be used to assess the effectiveness of the removal action and to compare the remaining sediment concentrations to the remediation goals developed for the Portland Harbor RI/FS.	No revisions to the Work Plan Addendum were required by this comment.	
124	B	8-5 / 8.1.4.2	EPA stated the requirement for a definition of TZW in the work plan, which was clearly presented in Section 8.1.4.2 of the Revised Work Plan. In fact, the need for additional samples to satisfy data gaps is also discussed in this section. It does not appear that EPA's Work Plan provides further detail regarding TZW sampling and analysis. LSS does not understand why this was considered "non-responsive" if EPA did not provide supplemental information.	LSS requests that the "non-responsiveness" determination be retracted.	EPA has determined that this comment will be addressed later as part of a FSP or other future document. EPA has determined that TZW sampling will be needed for post-dredging cap evaluation.	No revisions to the Work Plan Addendum were required by this comment.	257

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LSS Comment Number	Comment Priority	EPA Work Plan Page / Section No.	Comment/Problem Statement	Solution	Comment Resolution	Work Plan Addendum Modification	EPA Comment Number
125	B	8-12 / 8.2.1.2	EPA has not included the tiered testing approach for surface sediment analysis which includes bioassays. There is no explanation for not including this evaluation. This contradicts early EPA comments requesting the use of bioassays to evaluate accumulative affects of contaminants on benthic organisms.	LSS requests that the “non-responsiveness” determination for these comments be retracted.	EPA believes this comment is no longer relevant to the May 11, 2007 or July 14, 2006 Work Plans. EPA believes that bioassays are no longer viewed as being necessary to evaluate practical limits of the removal action area.	Text was added to section 8.2 of the Work Plan Addendum.	435, 144, 147, 376, 199, and 140
126	B	8-15 / 8.2.1.2	Subsurface Sediment Sampling, Analytical Strategy. Was the choice of stations and depths for the analysis of dioxins/furans selected randomly with the preliminary RAA boundary?	LSS requests that dioxin/furan analyses be deleted from the analytical strategy.	This comment can be addressed in a FSP and in future EE/CA documents as needed.	No revisions to the Work Plan Addendum were required by this comment.	